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## How art.com uses ABC to succeed

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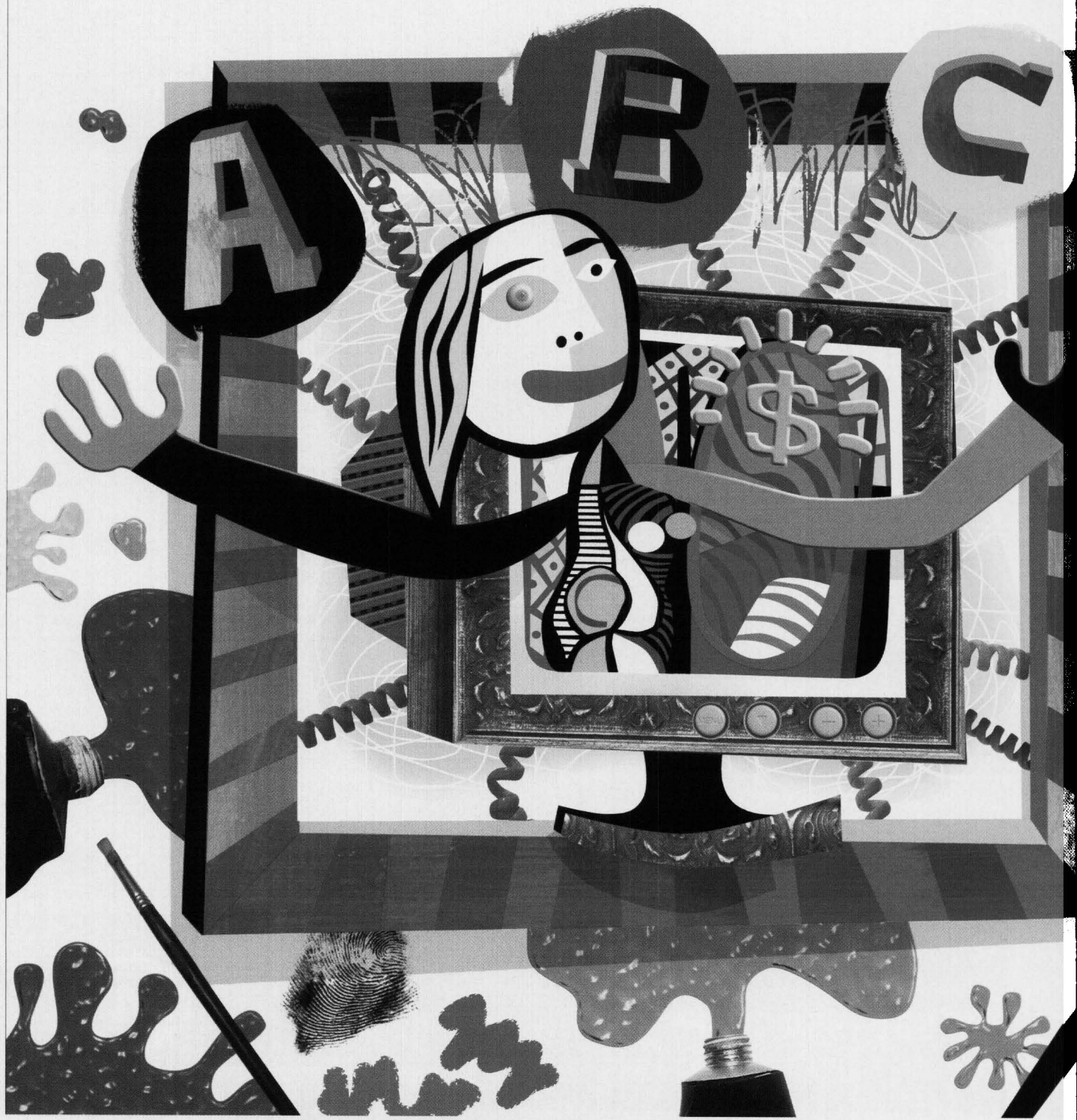
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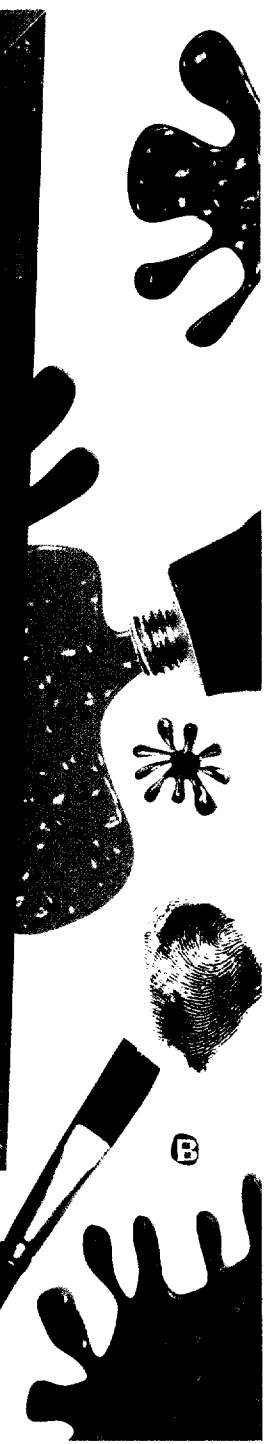
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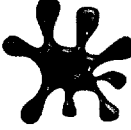
# How art.com™



# Uses ABC to Succeed

BY THOMAS L. ZELLER, CPA; DAVID R. KUBLANK; AND PHILIP G. MAKRIS, CPA



 The days of venture capitalists being caught up in the euphoria of dot-com mania—and throwing money at Internet start-ups—are over.

Dot-coms no longer have a free pass to Wild West spending of venture capital dollars. Along with venture capitalists, shareholders, bankers, and employees holding stock options are demanding that management have profits on the radar screen. It's time to create real wealth, not just anticipated wealth. Many of these start-ups have flipped, which means they have matured through the start-up phase and have been purchased by large organizations or are free-standing through an IPO. One flipped company—art.com™—turned to professionals to build a long-term successful business. The company uses activity-based costing (ABC) as a tool to guide leadership in resource allocation and decision making.

art.com™, which sells print and framed print art, opened its website in the spring of 1998. Following a typical launch-and-learn strategy, the company formalized processes to efficiently and effectively serve the customer by the summer of 1999. Their fundamental thinking? Selling to repeat customers is important to financial success. The entrepreneur then flipped art.com™ to a much larger enterprise in the spring of 1999, and, at that point, they brought in professional leadership to channel the entrepreneurial spirit into a successful business. ABC played a key role.

## THE COMPETITIVE LANDSCAPE

Dot-coms swim in a very intense competitive sea because brick-and-mortar and dot-com businesses are targeting the same customers. Both are racing to brand products, carve out market share, and build name recognition in the Internet space at Internet speed. Jeff Bezos, e-CEO of Amazon.com, compares this environment to the Cambrian Period of evolution, the earliest Paleozoic Era beginning about 570 million years ago. In a May 24, 1999, edition of *Fortune*, Bezos said, "That was when the earth had the greatest rate of new life. What people don't know is that it also had the greatest rate of extinction." To avoid extinction, managers of dot-coms must face two major issues:

- ◆ What infrastructure resources and related support systems must be in place for an e-tail business to earn a profit?
- ◆ What's the best way to advertise and promote a product so that the customer clicks through to the site and buys a product? Related to this issue is how much does it cost to earn a new Internet customer and then have them come back again and again—The Holy Grail of the dot-com world.

Let's look at these challenges. The opportunity to sell to the customer is limited to visual suggestions and text in a dynamic billboard. The sales staff doesn't have the opportunity to "show and tell" and educate a customer, build a customer relationship, and close a sale. A customer must also wait for product delivery. That's why customers must be able to buy what they want in a timely manner with minimal effort. An Amazon.com repeat customer can make a purchase with little effort. To do so,

management must work the entire value chain to meet customer needs and wants.

If management can efficiently and effectively overcome these challenges, an Internet business can make a mint. If not, they can go broke. Forrester has predicted that online grocery sales in the U.S. will reach \$10.8 billion by 2003 and online toy sales will grow to \$1.5 billion in 2003. E-business-to-business market potential is projected to be substantially larger. But now the validity of these projections is being questioned.

## UNIQUE E-TAIL ACTIVITIES

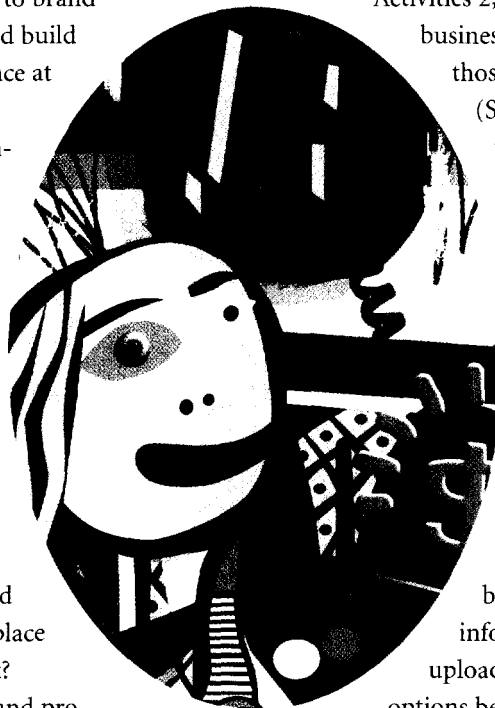
A 24-month study of art.com™ maturing from start-up to successful business venture identified 12 activities (distinct components of work functions and related tasks).

Activities 2, 3, 6, and 7 are unique to an e-tail business, while the others are similar to those in brick-and-mortar companies. (See Table 1). Each unique e-tail activity will help leadership manage resource consumption.

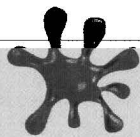
## WEBSITE OPTIMIZATION

Website Optimization (Activity 2) compares to managing the traditional retail floor. The complexity of a website, number of site pages, and number of changes all drive resource consumption. This dynamic billboard must always look fresh and inviting to earn repeat business. At art.com™, for example, information technology staff must upload Christmas prints and matting options before and during the holiday and, of course, remove them after the holiday. Modifying a few pages on a small site is relatively simple, but it's resource-intensive on a large site because of the many links to product and service options, affiliates' sites, and the accounting system. The lesson learned by everyone in e-tail is that website optimization is more costly than they planned. Just how costly is the unanswered question at this time.

When changes are made, the returning customer must be able to follow a similar and easy click-through pattern to make purchases yet see and feel the new product offerings. And to top off the challenges, the storefront life can be as short as two weeks but can range up to six months depending on the products.



## Table 1: Activity List



### 1. Service Customers

Servicing customers requires resources of space, phone system and e-mail, and information technology and includes the following activities:

- ◆ Help the customer to select a product or mix of products.
- ◆ Answer questions about the website, product availability, customer requests, and orders.
- ◆ Help customer place an order, change an order, and manage order entry problems.
- ◆ Help a customer work with the Web page.
- ◆ Work with customer regarding damaged goods, discontinued prints, backorders, special orders, or returned items.

### 2. Website Optimization

This activity links the business model to the customer and requires resources necessary for an electronic customer order. Work and resources included in this activity are:

- ◆ Electronic customer order processing hardware, software, and telephone systems.
- ◆ Design and maintain the website.

### 3. Merchandise Inventory Selection and Management

Building and maintaining the inventory on the e-retail Web page requires resources such as the IT server and scanning equipment and includes the following work functions:

- ◆ Attend product shows.
- ◆ Select images for the website.
- ◆ Negotiate contracts and prices with suppliers.
- ◆ Obtain written approval to scan and put the products on the website.
- ◆ Locate unique product requests.
- ◆ Create and develop new products, such as gifts and/or gift packages.
- ◆ Create product information, such as a time line, and any other work that supports the merchandising of products.
- ◆ Scan and annotate images.
- ◆ Upload and remove images from the system.
- ◆ Maintain image backups for current and discontinued prints.

### 4. Purchasing and Receiving

Purchasing product inventory, supplies, production tools, and equipment requires resources of space, time, and IT. The following work functions support this activity:

- ◆ Negotiate prices, and order items.
- ◆ Input data into the information system for shared files.
- ◆ Respond to supplier about damaged goods, receive and document received goods by matching vendor invoices to P.O. items received, and track discrepancies.

### 5. Customer Acquisition and Retention—Paid-for Marketing

Attracting customers requires resources of space, time, and IT. The following are work functions:

- ◆ Implement Web marketing through AOL, Yahoo!, etc.
- ◆ Pursue traditional marketing such as print, radio, and TV.
- ◆ Negotiate paid-for marketing programs.
- ◆ Implement customer awareness programs and monthly contacts through e-mail, etc.

### 6. Customer Acquisition and Retention—Revenue Share Marketing (Affiliate Group)

This is the activity of gaining storefront retail customers through other websites. Resources supporting this activity are space, time, and IT.

Work and tasks are:

- ◆ Call on website businesses to inquire about affiliate marketing opportunities.
- ◆ Research affiliate marketing trends and techniques.
- ◆ Prepare affiliate newsletters and collateral material.
- ◆ Maintain recognition and contact with affiliate sites.
- ◆ Coordinate affiliate market speaking engagements.
- ◆ Prepare and maintain the affiliate links, as well as track affiliate sales.

### 7. Sustain Information System

To maintain the basic information system infrastructure and platform, resources include space, time, and IT. The following functions support this effort:

- ◆ Maintain and upgrade the operating system hardware and software, e-mail system, and desktop machines.
- ◆ Maintain information system infrastructure resources including general ledger system, marketing information, system production information system, and more.
- ◆ Move the company forward on information system development projects. Examples of this are: 1) research and use new hardware and software products or add-ins, and 2) work to grow the use of IT so people work smarter, not harder.

### 8. Sustain Business—Administration

Running the administrative side of the business includes resources of space, time, and IT and the following work functions:

- ◆ Manage office, human resources, and general administrative responsibilities.
- ◆ Oversee accounting functions, negotiate insurance contracts, comply with regulatory requirements.
- ◆ Move the company forward on process improvement projects.

### 9. Sustain Business—Production

Running the production side requires resources of space, time, IT, job-costing system, and related modules, such as the bar coding and inventory tracking system. Work and tasks are:

- ◆ Support production through budgeting, negotiating contracts, complying with regulatory requirements, managing human resources, running the query to determine production, and general administrative responsibilities.
- ◆ Manage final billing sequence to customer to record the sale and settle the customer's account.
- ◆ Move the company forward on process improvement projects.

### 10. Maintain Facility—Administrative

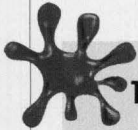
Maintaining an environment in which to run the administrative side includes resources such as rent, heat, lights, etc.

### 11. Maintain Facility—Production

Maintaining an environment for the production side includes resources such as rent, heat, lights, etc.

### 12. Sustain Business—Executive

Building the business enterprise by executive management and leadership requires resources such as time, space, equipment, travel, etc.



**Table 2: Dot-Com Inc. Quarterly Product Analysis**

Full Product Cost For the Quarter Ending

DESCRIPTION	PRINT UNITS			FRAMED UNITS		
	UNIT	PERCENT	UNITS SOLD 43,800	UNIT	PERCENT	UNITS SOLD 16,000
<b>Sales</b>	\$28.00	100%	\$1,226,400	\$85.00	100%	\$1,360,000
<b>Direct variable costs</b>						
Material	3.00		131,400	15.75		252,000
Direct labor	2.00		87,600	10.00		160,000
Packaging and freight	<u>3.00</u>		<u>131,400</u>	<u>15.00</u>		<u>240,000</u>
Variable costs	<u>8.00</u>	<u>29%</u>	<u>350,400</u>	<u>40.75</u>	<u>48%</u>	<u>652,000</u>
Contribution margin	20.00	71%	876,000	44.25	52%	708,000
<b>Approximate activity cost data*</b>						
Service customer	1.18		51,489	1.47		23,511
Purchasing and receiving	<u>0.71</u>		<u>30,893</u>	<u>0.88</u>		<u>14,107</u>
<b>Activity costs assigned on units sold</b>	1.89		82,382	2.35		37,618
Website optimization →	3.53	13%	154,588	4.41	5%	70,588
Print and merchandise inventory management	1.47	5%	64,412	1.84	2%	29,412
Marketing →	8.24	29%	360,706	10.29	12%	164,706
Sustain business—administration	0.88		38,647	1.10		17,647
Sustain business—production	0.76		33,494	0.96		15,294
Maintain facility—production	1.00		43,800	1.25		20,000
Sustain business—executive	<u>0.65</u>		<u>28,341</u>	<u>0.81</u>		<u>12,941</u>
<b>Activity costs assigned on units sold</b>	<u>16.53</u>		<u>723,988</u>	<u>20.66</u>		<u>330,588</u>
<b>Activity costs</b>	<u>18.42</u>	<u>66%</u>	<u>806,370</u>	<u>23.01</u>	<u>27%</u>	<u>368,206</u>
<b>Estimated profit (loss)</b>	<b>\$1.58</b>	<b>6%</b>	<b>\$69,630</b>	<b>\$21.24</b>	<b>25%</b>	<b>\$339,794</b>

\* Sustain Information Systems (Activity 7) isn't listed because it is a "within" activity allocation.

### MERCHANDISE INVENTORY SELECTION AND MANAGEMENT

Merchandise Inventory Selection and Management (Activity 3) is similar to selecting inventory to display at the retail store. It's a costly, information-intensive activity because each inventory item must be scanned, described,

classified, and linked to search options. Easy to say—not so easy to do. Scanning a book cover or record label is simple, but the person creating a 3-D image of a shirt or pair of shoes must possess artistic as well as IT skills to effectively represent the size, dimensions, feel, and color. Otherwise, no sale. For art.com™, the vivid colors of a

print must look alive and clear so the customer can envision how the art will fit in their home, hotel room, or office.

IT staff must also carefully manage each change to the database, which is similar to adding and removing inventory items from the shelf of a store. They annotate added inventory items and upload them into the system, as well as remove obsolete and discontinued items from the current database and add them to the backup system. No doubt, this calls for continuous monitoring. The number of inventory items for an e-tailer is typically much greater than for a brick-and-mortar, which is a competitive advantage, but experience shows managing a large inventory consumes substantial resources.

### CUSTOMER ACQUISITION AND RETENTION—REVENUE SHARE MARKETING (AFFILIATE GROUP)

Activity 6, Customer Acquisition and Retention—Revenue Share Marketing (affiliate group), is a separate marketing function. Management and the workforce must create and maintain affiliate relationships, which are business arrangements with other websites. If a customer clicks through to an affiliate website and buys a product, then the site where the customer originated earns a percentage of the purchase. The information technology staff establishes and maintains the links between websites—a distinct challenge when changes to each site are continuous. In addition, staff members invest a significant amount of time maintaining relationships with related sites through personal contacts, joint supporting research, and preparing newsletters.

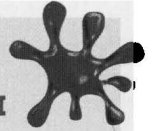
### SUSTAIN INFORMATION SYSTEM

Sustain Information System (Activity 7) is extremely important since a system failure means closing the front door to the business and immediate lost revenue as well as the potential to earn customers. Integration of the Web and back-office servers requires careful attention and skilled professionals. The system must be stable!

### E-TAIL FULL PRODUCT COST ANALYSIS

In any business, management evaluates and manages activity costs and potential benefits, but for e-tailers, timely ABC cost information is especially important

**Table 3: Dot-Com Inc.  
Unit Capacity Data  
for the Quarter Ending**



	PRINT	FRAMED
<b>Estimated unit capacity</b>	<b>60,000</b>	<b>20,000</b>
Units sold (used capacity)	43,800	16,000
Capacity not sold (unused capacity)	16,200	4,000

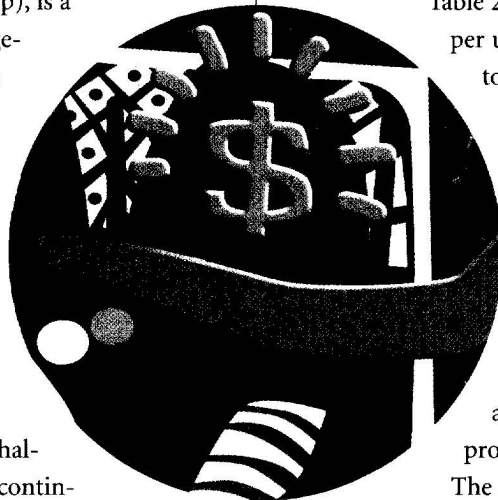
because the landscape shifts rapidly. It's all about efficiently and effectively allocating resources. The first step? Understanding individual product cost and profitability. Tables 2, 3, and 4 provide detailed information regarding activity costs per unit and in total by product category. (Note that all values in this report are for illustrative purposes only and don't reflect actual art.com™ performance.)

Table 2 first recaps the contribution margin per unit, contribution margin ratio, and total product category contribution (Print Units: \$20/unit, 71%, \$876,000; Framed Units: \$44.25/unit, 52%, \$708,000). This type of reporting format isn't new. The contribution margin and contribution margin ratio simply estimate how much each unit sold contributes to covering activity costs and profits for each product category.

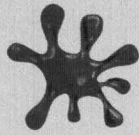
The approximate activity cost data section of the table recaps resource consumption of key business activities by product line. As the arrows highlight, website optimization and marketing consume substantial resources. You need to review Tables 3 and 4 carefully to critically evaluate the cost per unit and percent information in Table 2.

To analyze Table 2, consider the following:

- ◆ The dot-com can ship 60,000 print units and 20,000 framed units per quarter as shown in Table 3. Framing is completed on site.
- ◆ Illustrative print units sold are 43,800 and framed units, 16,000. As a result, the business has excess capacity of 16,200 print units and 4,000 framed units.
- ◆ Framed unit resource consumption for all activities is weighted at 1.25% of the amount driven to prints. Keep in mind that framed prints are weighted by 1.25 to estimate the greater resource consumption of a complex



**Table 4: Dot-Com Inc. Capacity Analysis**  
for the Quarter Ending



	FROM GENERAL LEDGER	COST/UNIT AT CAPACITY	COST/UNIT WGT. @ 1.25	P R I N T		F R A M E D	
				USED 43,800	UNUSED 16,200	USED 16,000	UNUSED 4,000
Customer service	\$75,000	1.18	1.47	\$51,489	n/a	\$23,511	n/a
Purchasing and receiving	45,000	0.71	0.88	30,893	n/a	14,107	n/a
Activity costs assigned on units sold	120,000	1.89	2.35	82,382		37,618	
Website optimization	300,000	3.53	4.41	154,588	57,176	70,588	17,647
Print & merchandise inventory management	125,000	1.47	1.84	64,412	23,824	29,412	7,353
Marketing	700,000	8.24	10.29	360,706	133,412	164,706	41,176
Sustain business—administration	75,000	0.88	1.10	38,647	14,294	17,647	4,412
Sustain business—production	65,000	0.76	0.96	33,494	12,388	15,294	3,824
Maintain facility—production	85,000	1.00	1.25	43,800	16,200	20,000	5,000
Sustain business—executive	55,000	0.65	0.81	28,341	10,482	12,941	3,235
Activity costs assigned on units sold	1,405,000	16.53	20.66	723,988	267,776	330,588	82,647
<b>Total activity costs</b>	<b>\$1,525,000</b>	<b>\$18.42</b>	<b>\$23.01</b>	<b>\$806,370</b>	<b>\$267,776</b>	<b>\$368,206</b>	<b>\$82,647</b>

product. Recognizing that an estimated 1.25 weight isn't perfect, this technique provides a reasonable approximation.

◆ Two activities—customer service and purchasing and receiving—are allocated on units sold, and framed units are weighted as discussed above. For example, customer service per-unit costs are computed as

$$(\$75,000)/[43,800+(16,000 \times 1.25)] = \$1.18.$$

Cost per unit weighted is computed  $\$1.18 \times 1.25 = \$1.47$  (rounded). Units sold are used to approximate the cost per unit because the cost associated with these resources models a semi-variable pattern.

◆ Sustain Information Systems (Activity 7) is a "within" allocation. That is, Activity 7 resource consumption is driven to the other activities and not driven separately to the respective cost objects. So the activity Sustain Information Systems isn't listed as a separate line item in Table 2.

For the two activities, service customer and purchasing



and receiving, it's assumed that resources are consumed based on units sold. In

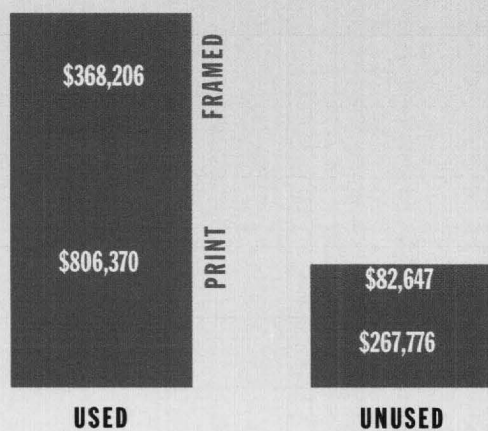
Table 4 the remaining activity costs are allocated based on capacity recapped in Table 3. For example, "website optimization" per-unit costs are computed  $(\$300,000)/[60,000+(20,000 \times 1.25)] = \$3.53$ . Cost per unit weighted is computed at  $\$3.53 \times 1.25 = \$4.41$ . Unit capacity

approximates the cost per unit because the cost associated with these resources models a relatively fixed pattern. The production manager, in consultation with the finance function, estimates practical unit output capacity by product category based on shipping and light production resources. The capacity value estimate plays a significant role in profitability analysis. If the practical capacity is set too low, product cost is overestimated, and if capacity is set too high, product cost is underestimated. When changes in resources of plant space and equipment occur, the practical capacity estimate must be modified.

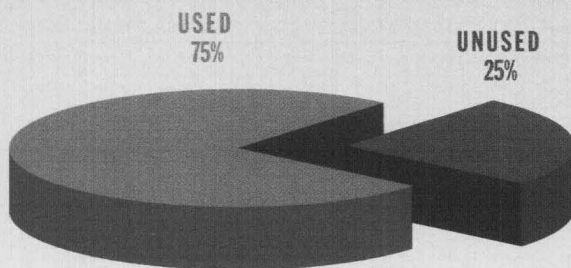
A distinct advantage of using practical unit capacity as



**Figure 1: Capacity Analysis**



**Figure 2: Capacity Analysis**



the activity assignment driver is that it puts everyone on a level playing field. Regardless of functional area and respective measurement techniques, products out the door are what generate profits. Thus, each functional area can see and understand what their respective activities cost the business as each unit is packaged and shipped.

### RESOURCE ALLOCATION AND DECISION MAKING

Table 2 shows management where to carefully manage resources. In percent of sales dollars, website optimization and marketing consume significant amounts of capital. Website optimization costs approximately \$3.53 per print or 13% of the selling price per unit, while marketing costs \$8.24 per unit or 29%. These two activities cost the business 42% (13% + 29%) of each sales dollar.

These values highlight the most costly activities for Internet businesses or Internet divisions. The current business literature reports that, for many Internet e-tailers, marketing alone costs more than 40% of each dollar sold. Regardless of how efficient and effective the organization functions, this means management must get its arms around the information technology and marketing

costs of an Internet business in order to guide the ship in a very competitive sea.

Yet knowing the activity cost per unit and in total from data in Table 2 doesn't provide enough insight for management. Table 4 shows a dollar value estimate of used and unused resources in total and by activity. In this illustration, used print resources, in total, equals \$806,370, and unused is \$267,776. Used framed resources, in total, equals \$368,206, while unused is \$82,647. Figures 1 and 2 show used and unused capacity. At 75% used capacity, approximately \$1 million is being allocated to units sold (\$806,370 + \$368,206). That means 25% of the capacity isn't being used, which translates into approximately \$350,000 (\$267,776 + \$82,647). Of this \$350,000, approximately \$170,000 (\$133,412 + \$41,176) is coming from marketing (Table 4). This suggests a significant imbalance between marketing dollars, unit sales, and production capacity. Leadership must respond to this information by working to generate a more effective marketing campaign or modify capacity or do a combination of the two to guide the business to long-term success.

### A FINAL NOTE

ABC helps management balance resources dedicated to the respective business functions. Naturally, increasing sales volume means a better use of fixed resources. Figures 1 and 2 and Table 4 show you explicitly that an imbalance exists between specific activities and unit sales and attaches a dollar estimate to this imbalance. Unless a dollar value is attached to used and unused capacity, it won't gain management's attention.

ABC can play an essential strategic role in building and maintaining a successful e-tail business because it answers questions about full product cost and balanced resources. Management can't manage what it doesn't know. With ABC, management can be proactive in leading the e-tail business to success. ■

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